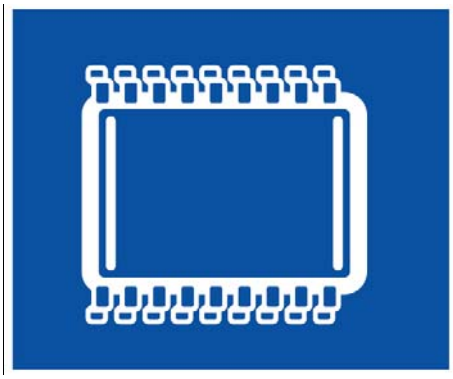
Trusted ePlatform Services

ADVANTECH

BIOS Flash

Version 1.0

User Manual



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Copyright Notice

Version History

Date	Version	Author	Description
2009/05/01	1.0	CL/Wilson	New release

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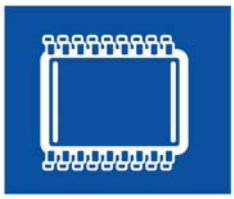
Introduction



An embedded system is usually a closed environment, or a headless system tasked with performing one or a few dedicated functions. When a System Integrator needs to upgrade or update the BIOS, they usually need to turn off the embedded system and go into a DOS environment. However, this is not always so practical and one must be careful when updating the BIOS, usually requiring a technical person to do so—a better way would be to flash the BIOS in a Windows XP environment directly.

Now, with Advantech's BIOS Flash utility, customers can update and backup the BIOS in a Widows XP environment. The BIOS Flash utility allows customers to update the flash ROM BIOS version, or use it to back up current BIOS by copying it from the flash chip to a file on customers' disk. The BIOS Flash utility also provides a command line version and API for fast implementation into customized applications. Alternatively, customers can add the BIOS Flash function into their embedded applications by calling Advantech BIOS Flash Application Programming Interface (API), or customers can put a new BIOS file on a USB disk so their applications will read it into the BIOS automatically. With Advantech's BIOS Flash utility, updates become easier and more integrated.

Advantech's BIOS Flash utility is a tool that allows customers to update and backup the BIOS on Advantech hardware platforms—all in a user friendly interface under Windows XP.

Product Features

- Updates the BIOS version of Flash ROM (Supporting Flash ROM Sizes 1 M, 2 M and 4 M KB)
- Backs up your current BIOS by copying it from the flash chip to a file on your disk
- Utility and API for fast implementation of custom applications
- Support Windows XP

Environments

System Architecture

X86 systems.

Support BIOS Type

Flash Size (1M,2M,4M,16M)KB

Flash Type (1M ROM)

Support OS

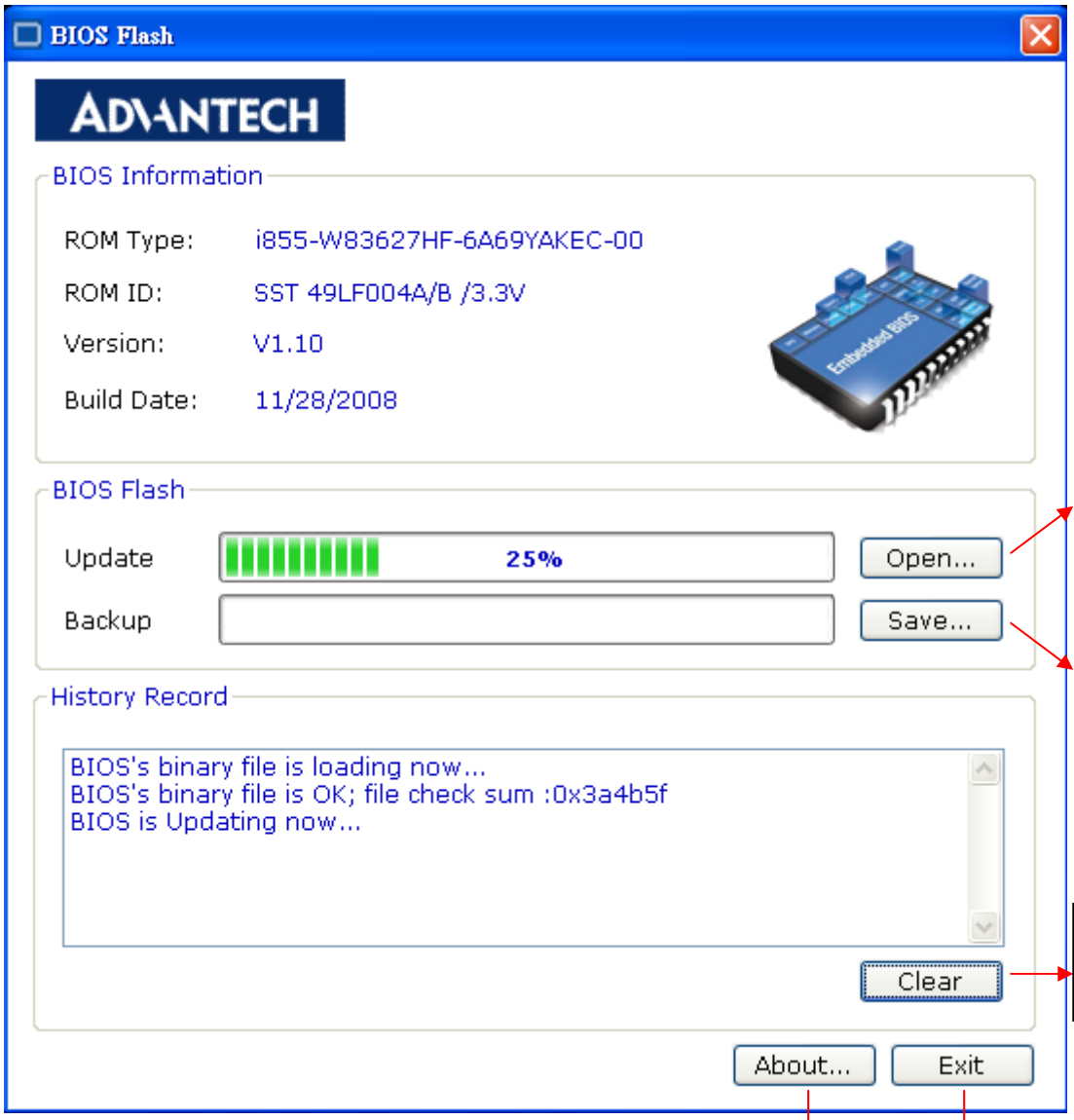
1. Windows XP Professional
2. Windows XP Embedded
3. Windows Embedded Standard

BIOS Flash Program

Installation

BIOS Flash installation is a setup file, please click the setup.exe to do the installation, follow the steps to complete the process. After the installation, this complete utility will include BIOSFlash.exe, ePFlash.dll and ePFlash.sys.

Main Menu and Control



Select a ROM file and flash it to BIOS.

Assign a file name and read BIOS to file.

Clear the history record.

The information of version.

Exit this tool.

Operation Flow or Procedures

GUI Mode:

- Backup a BIOS ROM:
  1. Press Backup Flash ROM button
  2. Type a file name on save dialog
  3. Press OK
- Update a BIOS ROM:
  1. Press Flash BIOS ROM button
  2. Press OK to validate
  3. Select a binary file open dialog
  4. Choose the BIOS block which you want to update and confirm it.
  5. Press OK

Command Mode

- Backup a BIOS ROM :
  CBiosFlash.exe –r FileName
- Update a BIOS ROM :
  CBiosFlash.exe –w FileName
- Update a BIOS ROM by force mode :
  CBiosFlash.exe –fw FileName

SUSI API Programmer's Documentation

All APIs return the BOOL data type except Susi*Available and some special cases that are of type int. If any function call fails, i.e. a BOOL value of FALSE, or an int value of -1, the error code can always be retrieved by an immediate call to SusiGetLastError.

[Initialize Module:]

(1) bool EPF_InitializeOpen

bool EPF_InitializeOpen (void* extend_info1)

Description: Initialize

Parameter: extend_info1, [OUT], a reserved parameter, you can set a empty string.

Return: true (1), false (0)

(2) bool EPF_InitializeClose

bool EPF_InitializeClose ()

Description: Un-Initialize

Parameter: None

Return: true (1), false (0)

[Information Module:]

(3) bool EPF_GetBiosInformation

bool EPF_GetBiosInformation (char* build_date_buf,

char * flash_rom_type_buf,

char * flash_rom_id_buf,

char * bios_ver_buf);

Description: Get BIOS Information

Flash ROM Type String (such as “SST 49LF004A/B 3.3V”)

Onboard chipset name (such as “Grantsdale-6A79DFKGC-00”)

Parameter: build_date_buf, [IN], get build date in a buffer.

flash_rom_type_buf, [IN], get flash rom type in a buffer.

flash_rom_id_buf, [IN], get flash rom id in a buffer.

flash_rom_id_buf, [IN], get bios version in a buffer.

Return: true (1), false (0)

[Flash Module:]

(4) EPF_SaveBinFileAsFlashRom

EPF_SaveBinFileAsFlashRom (HWND hWnd,

unsigned int msgID,

int flash_area);

Description: Update BIOS.

Parameter: save_bios_hWnd, [OUT], Show progress windows handle.

msgID, [OUT], User defined Windows Message.

flash_area, [OUT], Flash Area, 1->boot block, 2->dmi_esce block, 4->main block;

Message ID: 0x0400 + 0x205

Return: true (1), false (0)

[File Module:]

(5) EPF_LoadFile2BufAndGetFileCheckSum

EPF_LoadFile2BufAndGetFileCheckSum(char* file_path,

unsigned long *file_check_sum);

Description: Load BIOS from file to buffer

Parameter: file_path, [OUT], file path

file_check_sum, [IN], file check sum

Return: true (1), false (0)

(6) EPF_LoadProgAndSave2File

EPF_LoadProgAndSave2File (char* file_path,

HWND hWnd,

unsigned int msgID);

Description: Load BIOS from flash ROM to file.

Parameter: file_path, [OUT], file path

load_bios_hWnd, [OUT], Show progress windows handle.

msgID, [OUT], User defined Windows Message.

Message ID: 0x0400 + 0x204

Return: true (1), false (0)

Appendix

A: Supported BIOS Description

Flash Size (1M,2M,4M,16M)KB

Flash Type (1M ROM)

(AMD, ATMEL, CSI, INTEL, MOSEL, MX_AP, MX_P, SST, AMIC, WIN)

```
{AMD_CHIP_ID,            "AMD 29F010 /5V                "},
{ATMEL_CHIP_ID_1,        "ATMEL 29C010A /5V             "},
{ATMEL_CHIP_ID_3,        "ATMEL 49F001T /5V             "},
{CSI_CHIP_ID,          "CSI CAT28F001P /12V           "},
{INTEL_CHIP_ID,          "INTEL 28F001BX-T /12V       "},
{MOSEL_1M_CHIP_ID,     "MOSEL V29C51001T    /5V       "},
{MX_AP_CHIP_ID,          "MXIC 28F1000AP /12V           "},
{MX_P_CHIP_ID,           "MXIC 28F1000P /12V            "},
{MXIC_29F001T_ID,        "MXIC 29F001T /5V              "},
{SST_CHIP_ID,          "SST 28EE010 & 28EE011 /5V"},
{SST_CHIP_ID_1,          "SST 29EE010/5V                "},
{SST_39SF010_CHIP_ID,  "SST 39SF010 /5V               "},
{AMIC_A29001_ID,         "AMIC A29001 /5V               "},
{WIN_CHIP_ID,            "WINBOND 29EE011 /5V           "},
```

(AMD, AMIC, ATMEL, BM, CSI, EN, GTK, HY, IMT, INTEL, MOSEL, WINBOND, EFST, WIN, SST, PMC, ST, MXIC, PMC, TI)

Flash Type (2M ROM)

```
{AMD_2M_CHIP_ID,         "AMD 29F002(N)T /5V            "},
{AMIC_A29002_ID,         "AMIC A29002 /5V               "},
{ATMEL_2M_1_CHIP_ID,"ATMEL 49F002T /5V              "},
{ATMEL_2M_2_CHIP_ID,"ATMEL 29LV020 /3V              "},
{ATMEL_2M_CHIP_ID,     "ATMEL 29C020 /5V              "},
{BM_2M_CHIP_ID,          "BRIGHT BM29FS020 /5V          "},
{CSI_2M_CHIP_ID,         "CSI CAT28F002T /12V         "},
{EN_29F002_ID,           "EN EN29F002NT /5V             "},
{GTK_020_CHIP_ID,"ARF35LV020                    "},
{GTK_022_CHIP_ID,"AVF35LV020                    "},
{HY_29F002T_ID,          "HYUNDAI HY29F002T     /5V   "},
{IMT_2M_CHIP_ID,         "IMT IM29F002T /5V             "},
```

```
{INTEL_2M_CHIP_ID,      "INTEL 28F002BX-T /12V        "},
{MOSEL_2M_CHIP_ID,    "MOSEL V29C51002T    /5V       "},
{MOSEL_2M_V29LC51002_ID, "MOSEL V29LC51002T    /5V"},
{WINBOND_49F002T_CHIP_ID,    "WINBOND 49F002U /5V           "},
{WINBOND_39L020_CHIP_ID,       "WINBOND 29L020 /3.3V         "},
{EFST_F49B002UA_CHIP_ID,       "EFST F49B002UA /5V            "},
{WIN_49V002_CHIP_ID,           "WINBOND 49V002    /3.3V       "},
{SST_49LF020_CHIP_ID,          "SST 49LF020 LPC /3.3V       "},
{SST_49LF020A_CHIP_ID,              "SST 49LF020A LPC /3.3V      "},
{PMC_49LP002_Chip_ID,               "PMC Pm49LP002 LPC /3.3V "},
{PMC_Pm49FL002T_Chip_ID,     "PMC Pm49FL002T LPC/FWH"},
{ST_M50FW002_ID,               "ST M50FW002 FWH                "},
{ST_M50LPW002_ID,              "ST M50LPW002 LPC              "},
{WIN_49V002F_ID,               "WINBOND 49V002F /3.3V       "},
{ATMEL_AT49LL020_ID,         "ATMEL AT49LL020 2Mb LPC    "},
{SST_49LF003A_CHIP_ID,         "SST 49LF003A 3Mb /3.3V      "},
{SST_49LF030A_CHIP_ID,         "SST 49LF030A 3Mb /3.3V      "},
{MXIC_2000PPC_ID,      "MXIC 28F2000PPC /12V         "},
{MXIC_2000TPC_ID,      "MXIC 28F2000TPC /12V         "},
{MXIC_2M_2_CHIP_ID,  "MXIC 28F002TTC /12V          "},
{MXIC_29F002T_ID,      "MXIC 29F002(N)T /5V          "},
{MXIC_29F022T_ID,      "MXIC 29F022(N)T /5V          "},
{PMC_2M_CHIP_ID,       "PMC PM29F002T /5V             "},
{PMC_39F020_CHIP_ID, "PMC PM39F020 /5V               "},
{SST_2M_CHIP_ID,  "SST 29EE020 /5V                 "},
{SST_2M_1_CHIP_ID,     "SST 29LE020 /3V               "},
{SST_39SF020_CHIP_ID, "SST 39SF020 /5V               "},
{SST_39VF020_CHIP_ID, "SST 39VF020 /3.3V             "},
{SST_49LF002_CHIP_ID,  "SST 49LF002A /3.3V (2Mb) "},
{ST_2M_CHIP_ID,          "ST M29F002T    /5V             "},
{TI_2M_CHIP_ID,          "INTEL/TI TMS28F020 /12V     "},
{WINBOND_2M_CHIP_ID,     "WINBOND 29C020 /5V           "},
```

Flash Type (4M ROM)

(AMD, HY, ATMEL, GTK, BM, PMC, BMB, MOSEL, MXIC)

```
{AMD_4M_CHIP_ID,       "AMD 29F400BT /5V              "},
{HY_29F040A_ID,        "HYUNDAI HY29F040A      /5V   "},
{AMD_16M_CHIP_ID,      "AMD 29F160D /5V               "},
{BMB_16M_CHIP_ID,      "MBM 29F160    /5V             "},
```

```
{ATMEL_29C040_ID,       "ATMEL 29C040A /5V              "},
{GTK_040_CHIP_ID,"AVF35LV040                          "},
{BM_29F040_ID,          "BRIGHT BM29FS040 /5V         "},
{Bright_BM29F040_ID,    "BRIGHT BM29F040 /5V          "},
{PMC_39F040_ID,         "PMC PM39F040 /5V             "},
{PMC_PM29F004T_ID,      "PMC Pm29F004T /5V            "},
{ATMEL_AT49F040T_ID,    "ATMEL 49F040T /5V            "},
{EN_29F040_ID,          "EN EN29F040     /5V          "},
{BMB_29F040_ID,         "Fujitsu BMB29F040C /5V     "},
{MOSEL_29C51004_ID,     "MOSEL 29C51004T     /5V      "},
{MXIC_29F004_CHIP_ID,"MXIC 29F004T /5V                "},
(AMD, HY, ATMEL, GTK, BM, PMC, BMB, MOSEL, MXIC, INTEL, SST, WINBOND, ST, MegaWin, AMIC,
IMT)
{INTEL_E8280AD_ID,          "INTEL E82802AB /3.3V(4Mb)"},
{INTEL_E82F400B5T_ID,           "INTEL E82F400B5              "},
{SST_49LF004_CHIP_ID,           "SST 49LF004 /3.3V          "},
{SST_49LF004A_CHIP_ID,              "SST 49LF004A/B /3.3V       "},
{Winbond_FWH_W39V040A_Chip,    "Winbond W39V040FA                              (4Mb)"},
{Winbond_LPC_W39V040AP_Chip,    "Winbond W39V040AP (4Mb)"},
{PMC_Pm49FL004T_Chip_ID, "PMC Pm49FL004T LPC/FWH"},
{ATMEL_AT49LW040_ID,        "ATMEL AT49LW040 4Mb FWH"},
{ST_M29W040B_ID,        "ST M29W040B /3V              "},
{ST_M29F040B_ID,        "ST M29F040B /5V              "},
{ATMEL_AT49LL040_ID,    "ATMEL AT49LL040 4Mb LPC    "},
{SST_49LF040_CHIP_ID,  "SST 49LF040A LPC /3.3V      "},
{SST_28SF040A_ID, "SST 28SF040A /5V               "},
{ST_M29F400T_ID,        "ST M29F400T    /5V           "},
{WINBOND_29C040_ID, "WINBOND 29C040 /5V           "},
(AMD, HY, ATMEL, GTK, BM, PMC, BMB, MOSEL, MXIC, INTEL, SST, WINBOND, ST, MegaWin, AMIC,
IMT)
{WINBOND_39L040_CHIP_ID,    "WINBOND 29L040 /3.3V      "},
{MegaWin_MM29F040_ID,    "AMD AM29F040B /5V             "},
{MegaWin_MM29LF040_ID,  "MEGAWIN MM29LF040 /3.3V    "},
{MXIC_MX29F040_ID,    "MXIC MX29F040 /5V              "},
{AMIC_A29040_ID,        "AMIC A29040    /5V           "},
{ST_M50FW040_ID,        "ST M50FW040 /3V              "},
{ST_M50LPW040_ID,       "ST M50LPW040 /3V             "},
{ST_M50LPW041_ID,       "ST M50LPW041 /3V             "},
{SST_39SF040_ID,        "SST 39SF040 /5V              "},
```

{SST_39SF040P_ID, "SST 39SF040P /5V "},
{SST_39VF040P_ID, "SST 39VF040P /5V "},
{IMT_4M_CHIP_ID, "IMT IM29F004T /5V "},
{INTEL_E8280AC_ID, "INTEL E82802AC /3.3V(8Mb)"},
{SST_49LF008_CHIP_ID, "SST 49LF008A /3.3V "},
{SST_49LF080A_CHIP_ID, "SST 49LF080A /3.3V "},
(AMD, HY, ATMEL, GTK, BM, PMC, BMB, MOSEL, MXIC, INTEL, SST, WINBOND, ST, MegaWin, AMIC, IMT)
{ST_M50LPW080_ID, "ST M50LPW080 8Mb LPC /3V "},
{ST_M50FW080_ID, "ST M50FW080 8Mb FWH /3V "},
{ATMEL_AT49LW080_ID, "ATMEL AT49LW080 8Mb FWH "},
Flash Type (16M ROM)
{0x25bf, "SST 25VF016B 16Mb SPI ", SPI}}